DEPARTMENT OF THE NAVY

NAVAL SUPPLY SYSTEMS COMMAND

WASHINGTON, D.C. 20376

NAVSUPINST 4750.1A
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1 1 MAY 1990

NAVSUP INSTRUCTION 4750.1A

Subj: AUTOMATED FUEL MAINTENANCE SYSTEM   (R

Encl: (1) Fuel Planned Maintenance System (PMS) Program Users(A
          Guide

1. **Purpose**. To establish standard procedures for implementa-(R
tion and use of the automated fuel planned maintenance system
for Navy fuel terminal facilities.

2. **Cancellation**. NAVSUPINST 4750.1 is cancelled.   (A

3. **Definitions**

   a. **Maintenance**. Actions scheduled on a regular or
emergency basis to maintain equipment and facilities in
optimum working condition. These actions consist of
preventive, corrective, and breakdown maintenance actions.

   b. **Automated Fuel Planned Maintenance System**. A computer
database program used for management control of scheduling,
resourcing, recordkeeping, and analysis of fuel maintenance
actions.

   c. **Preventive Maintenance System**. Regularly scheduled
maintenance actions (e.g., greasing valves) which prolong the
service life of equipment and facilities.

   d. **Corrective Maintenance**. Scheduled repair of defective
equipment and facilities to restore efficiency or safety
(e.g., replacing frayed wiring).

   e. **Breakdown Maintenance**. Repair required immediately to
prevent interruption in operations or environmental
contamination (e.g., repair leaking flange).

   f. **Maintenance Requirement Cards (MRC)**. Information
cards which provide procedures for performing preventive
maintenance actions. The cards also include a listing of the
necessary tools and safety guidelines pertaining to the
maintenance action. MRCs are either created by the user or
obtained from the list of standard MRCs included in the
automated program. It is possible that more than one MRC will
apply to one piece of equipment. Enclosure (1) provides an
example of an MRC.

   g. **MRC Code**. A three-part code assigned to identify each
MRC. The first part identifies the type of equipment to be
maintained. The second part identifies the frequency of

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required maintenance. The third part is a unique number to distinguish the MRC from other MRCs of the same frequency pertaining to the same equipment. Enclosure (1) provides an example of an MRC code.

h. <u>Maintenance Index Page (MIP)</u>. A reference list of all MRCs applicable to one piece or type of equipment. Enclosure (1) provides an example of a MIP.

i. <u>Equipment Guide List (EGL)</u>. A reference list of equipment with the same MRC. EGLs are not mandatory. They are an option for the user which reduces paperwork and data entry. Enclosure (1) provides an example of an EGL.

j. <u>EGL Ticket</u>. The EGL ticket is provided whenever EGLs are scheduled for maintenance. The EGL ticket should be initialed after ALL the equipment items on it have had the maintenance action performed. Enclosure (1) provides an example of an EGL ticket.

k. <u>PMS Ticket</u>. Printed by the program, the ticket is the document used by the maintenance person for a single PMS action. Enclosure (1) provides an example of a PMS ticket.

l. <u>Priority Code</u>. Assigned to all PMS actions, the priority code identifies the criticality of a piece of equipment.

Priority 1: Maintenance necessary to prevent failure of essential equipment. Other priority 1 actions include those related to safety and the environment.

Priority 2: Maintenance which left undone could lead to impaired or inefficient fuel terminal mission.

Priority 3: Maintenance performed on non-mission essential equipment.

m. <u>Program User</u>. The person responsible for printing tickets, entering completed actions, and printing reports from the program.

R) 4. <u>Background</u>. PMS is a proven method for prolonging the life of fuel terminal equipment, minimizing unscheduled interruptions, and reducing repair costs. The Navy Petroleum Office (NAVPETOFF) has developed an automated program which enhances the manual system in that it provides efficient

record control of scheduling, recording, reporting, and
analyzing preventive, corrective, and breakdown maintenance
actions. These features enable the fuel officer to maximize
effective cost control of maintenance resources.

5. Discussion   (R

    a. Equipment Identification. Prior to implementing the
automated program, fuel facility personnel should permanently
mark or tag each piece of equipment requiring maintenance with
a unique number. Tags should be weatherproof and rust
resistant. Further information regarding equipment tagging
can be obtained from NAVPETOFF.

    b. Program Operation. Enclosure (1) provides the
details concerning hardware and software needs and directions
for creating and updating individual program records. Each
record corresponds to one maintenance action. The program is
designed to provide reports on a monthly basis. Each month
the user will print tickets for the next months schedule. As
PMS actions are completed the maintenance person will record
the date that the action was completed, the time expended, his
initials and employee number. Any discrepancy or difficulty
encountered during the maintenance action should be annotated
on the ticket. At the end of each month, the user will record
the completed actions and print those reports requested by the
fuel officer. It is recommended that users provide some means
of program data backup.

    c. Scheduling. The program provides automatic
scheduling of maintenance actions which occur with monthly,
quarterly, semiannual, and annual frequency. Daily and
weekly scheduled maintenance is made possible by printing
the number of tickets needed for each month, summing the
totals manually each month, and entering the totals into
the computer at the end of each month.

    d. Program Reports. The program provides the following
reports:

Monthly	System Utility
History	MRC Listing
Deleted Records	Branch and Tradecode
Backlog	Listing
Management Summary	MIP
Scheduled	EGL
Completed	Site Specific Listing
Deferred	
Corrective	
PM-EGL	

Enclosure (1) provides examples of detailed information available in each report.

    e. PMS Goals. The management summary report provides an overall percentage effectiveness of accomplished PMS. In addition, this report provides percentages of completed actions based on priority, percentages of scheduled manhours completed, and percentages broken down by department within the fuel facility organization. As a point of reference, NAVSUP has set an annual goal of 90 percent for overall effective ness and 95 percent for priority 1 completed actions for the Naval Supply Center fuel terminals.

    f. Spot Checking. In order to ensure reliable performance, fuel department directors should ensure that at a minimum, 5 percent of the completed actions are spot checked each month.

    g. Program Revision. At various times, NAVPETOFF will revise the automated fuel maintenance system program with improvements. These improvements usually result from feedback from the field activities currently using the program. When the program has undergone a new revision, NAVPETOFF will furnish a copy to all users, along with an explanation of the changes incorporated in the revision.

    h. Program Registration. Activities currently using the automated program are registered with the NAVPETOFF. Activities currently using a manual program may write to the NAVPETOFF via their major claimant in order to become registered and receive a copy of the program and user's guide.

A) 6. Action

    a. NAVPETOFF is the configuration manager of the automated fuel maintenance system program and in this capacity must approve all program changes. Training and technical assistance is available from NAVPETOFF.

    b. Activities using this program should provide written feedback to NAVPETOFF regarding program errors, difficulties, and suggested improvements.

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Vice Commander

1 1 MAY 1990

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FUEL PLANNED MAINTENANCE SYSTEM (PMS) PROGRAM

USERS GUIDE

Enclosure (1)

Abstract

The Fuel PMS Program Users Guide was developed by the Navy Petroleum Office with assistance from each of NAVSUPSYSCOM's eight Naval Supply Center Fuel Departments, and particularly, NSC Puget Sound. The purpose of this manual is to provide a "hands on" learning guide to individuals who are unfamiliar with this program.

The format of the Users Guide parallels the Main Menu of the Fuel PMS Program. The guide discusses in detail the numerous maintenance reports, and provides instruction on creating, modifying, and maintaining the database files. Examples are included throughout the manual and an example of each report is also provided.

Although the Fuel PMS Program was initially developed as a NAVSUP program, it can be readily used at every PC-capable fuel activity throughout the Navy. Accordingly, the Navy Petroleum Office encourages the widest dissemination of this program.

PMS USER GUIDE REVISIONS

PAGE SECTION	REVISION
2 3.1-b	"(MC)" should read "(MS)"
11 4.2.1.1-b	"C" should read "S" for Corrective
12 4.2.1.1-b	"MC and OC" should reqd "MS and OS"
12 4.2.1.4-b	"MCAM0011" should read "MSAM0011"
13 4.2.1.7	"(_C)" should read "(_S)"
13 4.2.1.9	Enter "999" should read "01/01/99"

Standardized Maintenance Requirement Card (MRC) Listing

MRC	FQ	EMH	DESCRIPTION	PMS REQUIRED	MIP	CRITICALITY CODE
BT-A-1	12	1.00	Outboard Engine	Service	Boats	2
BT-A-2	12	30.00	Fuel Barges	Cert/Inspection	Boats	1
BT-M-1	1	1.00	Outboard Engine	Inspect/FW flush	Boats	2
BT-M-2	1	4.00	Fuel Barges	Hull Inspection	Boats	1
BT-M-3	1	4.00	Fuel Barges	Electrical Insp.	Boats	1
BT-Q-1	3	2.00	Outboard Engine	Lubrication	Boats	2
BT-Q-2	3	3.00	Fuel Barges	Lubrication	Boats	1
BT-S-1	1	4.00	Fuel Barges	Winch Insp./Lube	Boats	1
BU-A-1	12	0.75	Air Conditioner	Inspect & Clean	Buildings	3
BU-S-1	6	0.25	Buildings	Inspect	Buildings	3
BU-S-2	6	1.00	HVAC	Fans/Belts/Filters	Buildings	3
CA-A-1	12	0.50	Thermometers	Calibrate	Calibration	1
CA-A-2	12	0.50	Pressure Gauges	Calibrate	Calibration	1
CA-A-3	12	0.25	Gauging Tapes	Calibrate	Calibration	1
CA-A-4	12	0.50	Conductivity Meter	Calibrate	Calibration	1
CA-A-5	12	0.50	Analytical Balances	Calibrate	Calibration	1
CA-A-6	12	0.50	Hydrometers	Calibrate	Calibration	1
CA-S-1	6	1.50	Meters	Calibrate	Calibration	1
CA-S-2	6	0.25	Explosion Meter	Calibrate	Calibration	1
CO-M-1	1	1.00	Compressors, Air	Clean/Lube/Inspect	Compressor	2
CO-S-1	6	1.00	Compressor	Oil change/Inspect	Compressor	2
CP-M-1	1	1.25	Cath Prot Rectifiers	Insp./Test/Service	Cathodic Protection	1
CP-Q-1	3	0.25	Cathodic Protection	Check Bonding Wire	Cathodic Protection	1
CP-S-1	6	0.25	Cath Prot Structure	Potential Survey	Cathodic Protection	1
EM-M-1	1	0.50	Batteries	Service Batteries	Emergency Systems	1
EM-M-2	1	2.00	Two Way Radio	Replenish Water	Emergency Systems	1
EM-M-3	1	0.50	Generators	Check Output	Emergency Systems	2
EM-Q-1	3	1.00	Emergency Generator	Perform Load Test	Emergency Systems	1
EM-S-1	6	0.25	Life Rings	Check/Replace	Emergency Systems	1
EM-W-1	1	0.25	Emergency Eye Wash	Operate/Flush Sys.	Emergency Systems	1
EM-W-2	1	0.25	Generators	Clean/Operate	Emergency Systems	1
FP-A-1	12	0.25	Fire blankets	Visual Inspection	Fire protection	1
FP-A-2	12	1.00	Fire Hoses	Pressure Test	Fire protection	1
FP-A-3	12	1.00	Foam Fire Liquid	Inspect Chemicals	Fire Protection	2
FP-A-4	12	0.25	Foam Fire Chemical	Inspect/Sample	Fire protection	2
FP-M-1	1	0.50	Fire Extinguishers	Inspect and Weight	Fire protection	2
FP-S-1	6	0.50	Fire Hydrants & Vlvs	Insp./Clean/Lube	Fire Protection	1
FP-S-2	6	0.50	Foam Makers/Chamber	Inspect/Clean	Fire Protection	2
GB-M-1	1	0.25	Grounding & Bonding	Inspect/Clean	Grounding & Bonding	1
GN-Q-1	3	1.50	Signs and Markings	Inspect/Minor Rpr.	Grounds	3
GN-Q-2	3	2.50	Roadways	Minor repairs	Grounds	3
GN-Q-3	3	2.00	Lighting Systems	Inspect/Replace	Grounds	3
HO-A-1	12	1.00	Fuel Hose	Pressure Test	Hoses	1
HO-M-1	1	0.25	Fuel Hose	Inspect Fuel Hose	Hoses	1
HO-Q-1	3	1.00	Fuel Dispensing Reel	Clean/Inspect	Hoses	2
LA-M-1	1	0.50	Loading arm	Clean/Lube/Inspect	Loading Arm	1
LA-S-1	6	2.00	Fuel loading arm	Vis. Insp./lube	Loading Arm	1
LB-M-1	1	2.00	Potable Water	Smpl./Test Presure	Lab	2
LR-Q-1	3	0.50	Loading Rack	Insp./Clean Truck	Loading Rack	1
PC-A-1	12	2.00	Oil Spill Boom	Insp./Clean/Repair	Pollution Control	2
PC-Q-1	3	2.00	Oil-water Separator	Visually Inspect	Pollution Control	2

Standardized Maintenance Requirement Card (MRC) Listing

MRC	FQ	EMH	DESCRIPTION	PMS REQUIRED	MIP	CRITICALITY CODE
PI-A-1	12	4.00	Filter Separator	Replace Elements	Pipeline	1
PI-A-2	12	3.00	Pipelines	Pressure Test	Pipeline	1
PI-M-1	1	1.00	Valve Pits	Inspect/Clean	Pipeline	3
PI-Q-1	3	1.00	Strainers	Inspect/Clean	Pipeline	1
PI-Q-2	12	0.25	Expan. Jts Bellows	Inspect/Clean	Pipeline	1
PI-Q-3	3	0.25	Expansion Jts Packed	Clean/Inspect/Lube	Pipeline	1
PI-Q-4	3	1.00	P/Lines,Above-Ground	Inspect/Service	Pipeline	1
PI-Q-5	3	0.50	Relaxation Chamber	Check	Pipeline	1
PI-Q-6	3	0.25	Expansion Joint Ball	Clean/Inspect	Pipeline	1
PI-S-1	6	0.25	Swivel Joint	Lubricate	Pipeline	1
PR-Q-1	3	1.00	Piers	Inspect	Piers	2
PU-Q-1	3	1.00	Centrifugal Pump	Insp./Lube/Operate	Pumps	1
PU-Q-10	3	1.00	Pump Mtr. Controller	Clean/Inspect	Pumps	1
PU-Q-11	6	0.50	Port Gas Driven Pump	Check	Pumps	2
PU-Q-2	3	0.75	Rotary/Vein Pump	Operate/Lube/Insp.	Pumps	1
PU-Q-3	3	0.75	Reciprocating Pump	Service/Lube/Clean	Pumps	1
PU-Q-4	3	1.00	Pumps, Diaphram	Clean/Lubricate	Pumps	1
PU-Q-5	3	1.50	Pumps, Gear	Service/Clean/Lube	Pumps	1
PU-Q-6	3	0.50	Pumps, Deepwell	Clean/Lubricate	Pumps	1
PU-Q-7	3	1.00	Pump Motors	Clean/Insp./Serv.	Pumps	1
PU-Q-8	3	0.50	Pump Engine	Test/Insp. Shaft	Pumps	1
PU-Q-9	3	1.00	Pump Reduction Gears	Inspect/Clean/Lube	Pumps	1
RF-M-1	1	0.25	Carb. Air filter(RV)	Inspect	Vehicle	1
RF-Q-1	3	0.50	Eng Driven Pump (RV)	Lubricate/Inspect	Vehicle	2
SE-S-1	6	0.25	Locks	Lube/Ensure ops.	Security	3
SE-S-2	6	0.50	Fences & Gates	Inspect	Security	3
TE-A-1	12	1.00	Transformer	Inspect/Clean	Transformer	1
TK-A-1	3	1.00	Flame Arrestor	Inspect/Clean	Tanks	1
TK-A-2	12	1.00	Tank Vacuum Vents	Inspect/Clean	Tanks	1
TK-A-3	12	2.00	Tank level Gauge	Inspect/Calibrate	Tanks	2
TK-M-3	1	1.00	High/Low Level Alarm	Test/Inspect	Tanks	1
TK-Q-1	3	0.50	Aboveground Tank	Visual/Ops. /Insp.	Tanks	2
TK-Q-2	3	1.50	Floating Roofs	Visual Inspection	Tanks	1
TK-S-1	6	0.25	Sight Gauges	Visual Inspection	Tanks	3
TO-A-1	12	0.50	Lawn Mower	Check Over	Tools	3
TO-A-2	12	0.50	Edgers, Weed Eaters	Insp. Power Edger	Tools	3
TO-S-1	6	0.50	Band Saw	Clean/Lubricate	Tools	3
TO-S-10	6	0.50	Threader, Machine	Clean/Lubricate	Tools	3
TO-S-11	6	0.25	Table Saw	Inspect/Lubricate	Tools	3
TO-S-12	6	0.50	Sandblast Machine	Clean/Lubricate	Tools	3
TO-S-13	6	0.25	Radial Arm Saw	Inspect/Lube	Tools	3
TO-S-14	6	0.25	Electric Tools	Inspect/Meg	Tools	2
TO-S-2	6	0.50	Drill Press	Clean/Lubricate	Tools	3
TO-S-3	6	0.50	Grinder, Bench	Clean/Lubricate	Tools	3
TO-S-4	6	0.50	Iron Worker	Inspect/Lubricate	Tools	3
TO-S-5	6	0.50	Lathe, Engine	Clean/Lube/Insp.	Tools	3
TO-S-6	6	0.25	Planer	Inspect/Lubricate	Tools	3
TO-S-7	6	0.25	Shaper	Insp./Clean/Lube	Tools	3
TO-S-8	6	0.25	Milling Machine	Inspect/Lubricate	Tools	3
TO-S-9	6	1.00	Welding Machine	Clean/Insp/Service	Tools	3
VA-A-1	12	1.00	Pressure Relief Vlvs	Calibrate/Inspect	Valves	1

Standardized Maintenance Requirement Card (MRC) Listing

MRC	FQ	EMH	DESCRIPTION	PMS REQUIRED	MIP	CRITICALITY CODE
VA-Q-1	3	0.50	Valve, Gate	Clean/Lube/Inspect	Valves	2
VA-Q-2	3	0.50	Valve Diaphragm	Inspect/Clean/Lube	Valves	1
VA-Q-3	3	0.50	Berm Drainage Valves	Inspect/Lubricate	Valves	1
VA-Q-4	3	0.50	Lubricated Plug Vlvs	Lubricate	Valves	2
VA-Q-5	3	0.50	Motor Ops. Valve	Inspect	Valves	2
VA-Q-6	3	0.25	Valve, Ball	Inspect for leaks	Valves	2
VA-Q-7	3	1.50	Butterfly Valve	Visual Inspection	Valves	2
VA-Q-8	3	0.25	Valves, Globe	Inspect for leaks	Valves	2
VA-Q-9	3	0.50	Low Point Drain Vlvs	Insp./Repair/Replc	Valves	2
VA-S-1	6	0.25	Check Valves	Check Operation	Valves	2
VA-S-2	6	0.20	Twin Seal Valve	Inspect & Drain	Valves	1

RECORD OF CHANGES

CHANGE NUMBER	DATE OF CHANGE	DATE ENTERED	ENTERED BY WHOM

FUEL PLANNED MAINTENANCE SYSTEM PROGRAM

USER'S GUIDE

1.0 INTRODUCTION. The Fuel Planned Maintenance System (PMS) Program is a complete maintenance management package, written in D-Base III and based on the shipboard 3M system, that can be used at Navy fuel terminals worldwide. The Navy Petroleum Office is the configuration manager for this program. Accordingly, user should not make changes to this program without specific approval from NAVPETOFF. It provides management and the work force with the necessary tools to ensure that an effective maintenance program is in place. The many features of this program include a preventive maintenance schedule with individual action tickets, numerous management reports, a year to date maintenance accomplishment summary, and a prioritized backlog of all corrective and breakdown maintenance.

The purpose of the user's guide is to provide instruction on the use of the Fuel PMS Program. The program, however, is only as good as the data entered. Therefore, it is critical that each activity perform the necessary preliminary work prior to implementing this program. The required preliminary work is as follows:

o A complete inventory of all equipment and facilities requiring preventive maintenance. Any equipment found that is not covered must be added to the data base.

o Establishment of Equipment Guide Lists (EGLs). This requires identifying each piece of equipment covered under a particular Maintenance Requirement Card (MRC), and grouping these items into one or more listings.

o Tagging of each piece of equipment with a unique identification number, also to be recorded in the program data base. The tags should be permanent, capable of withstanding excessive wear and tear over an extended period of time.

1.1 FUEL PMS PROGRAM REQUIREMENTS. In order to use this software, you will need the following:

a. IBM XT or compatible
b. 10 megabyte (or larger) hard drive
c. Printer
d. Color Monitor

2.0 <u>GETTING STARTED</u>. To initiate use of the Fuel PMS Program, a directory must first be established on the hard drive, and a copy of the program entered onto it. Below are the steps you must take to accomplish this procedure:

    a. Type "CD\" and hit enter. This will place you in the root directory of your hard drive.

    b. Type "MD\PMS" and hit enter. This will create a directory called PMS.

    c. Type "CD\PMS" and hit enter. This will place you in the PMS directory.

    d. Insert the PMS disk into drive A.

    e. Type "COPY A:*.* C:". This will copy all files on the disk to your hard drive.

    f. Type "PMS" and hit enter.

NOTE: If you have the PATH= command in your Autoexec.bat file, you will need to add \PMS;\ to your path.

You are now able to utilize the Fuel PMS Program. The first step is to add the records necessary to create your data base. Before you do however, it is important that you learn the terminology. As with any system, there are several definitions that must be fully understood in order to fully utilize this program.

3.0 <u>DEFINITIONS</u>

3.1 <u>TYPES OF FUEL MAINTENANCE</u>

    a. **PREVENTIVE MAINTENANCE (PM):** A program of scheduled recurring work designed to maintain equipment and facilities to ensure they function as designed over their service life. An example of a preventive maintenance action would be changing the gearcase oil in a pump.

    b. **CORRECTIVE MAINTENANCE (MC):** A program of scheduled repairs to correct documented deficiencies (usually reported on the Annual Inspection Summary). An example of a corrective maintenance action would be a scheduled overhaul of a pump.

    c. **BREAKDOWN MAINTENANCE (MB):** Repairs required immediately in response to unscheduled interruptions in mission essential equipment or facilities. An example of breakdown maintenance would be the replacement of bearings on a pump which seized during a fueling operation (probably due to a lack of preventive maintenance).

3.2 BRANCH/LOCATION CODE. This is a field which identifies the branch, division, or department responsible for performing the maintenance (i.e., Operations, Lab, Maintenance). It can also be organized by location (i.e., Pearl City, Kuahua, Red Hill) if desired. All branches/locations must be determined prior to loading maintenance records.

3.3 TRADE CODE. This is a field which identifies the specific trade within the branch or location (i.e., mechanic, pipefitter) responsible for a particular maintenance action. All trade codes must be established prior to loading maintenance records.

3.4 ITEM CODE. This is a number the computer automatically assigns to each record.

3.5 RECORD IDENTIFICATION NUMBER. This important number is used by the program to keep track of every record and to make each unique. It also helps to identify what sort of action is to be taken. The Record Identification Number is comprised of three essential parts; the Branch Code, Trade Code and Item Code.

3.6 MAINTENANCE REQUIREMENT CARD (MRC). A record, similar to the MRC used in the shipboard 3-M system, that instructs the worker how to perform a particular preventive maintenance action. Examples of information contained on an MRC include nomenclature, procedure, tools, materials, and safety precautions.

3.7 MAINTENANCE INDEX PAGE (MIP). The broadest grouping of equipment covered under preventive maintenance. For example, all preventive maintenance related to valves will have an MRC designation beginning with "VA" (i.e., an annual gate valve MRC might be listed as "VA-A-1").

3.8 EQUIPMENT GUIDE LIST (EGL). A listing of equipment, all covered under the same MRC, for use in identification in the field. The Fuel PMS Program also uses EGLs to minimize end of the month data entries, allowing an entire EGL to be signed off with only one entry.

3.9 ADMINISTRATIVE SUSPENSE LIST. A pre-programmed "tick" list, that can be used by the fuel department/division for tracking non-maintenance related recurring administrative actions, such as monthly messages, performance appraisals, or other routine reports.

3.10 CARRYOVER MAINTENANCE. Preventive maintenance that was not accomplished during the scheduled month, but can still be rescheduled. For example, a quarterly action scheduled for January accomplishment can still be carried over into February or March before it becomes overdue, since the next scheduled maintenance for that item would not be until April.

3.11 LOST MAINTENANCE. Preventive maintenance that was not accomplished during the scheduled month and can no longer be deferred. An example of this would be any monthly or weekly preventive maintenance action, or a quarterly action that has been twice deferred.

4.0 MAIN MENU. The main menu displays the system functions of the Fuel PMS Program. Shown below is the screen for the main menu:

```
   DATE:05/01/89                                    PRESS F1 FOR
HELP
-------------------------------------------------------------------
|              PLANNED MAINTENANCE SYSTEM                         |
|                                                                 |
|                   MAIN MENU                                     |
-------------------------------------------------------------------


              ENTER SELECTION ===>      [ ]


                    1 - MAINTENANCE REPORTS
                    2 - DATABASE MAINTENANCE
                    3 - MRC INQUIRY
                    4 - MAINTENANCE TRANSACTIONS
                    5 - END OF MONTH PURGE
                    6 - RESET SYSTEM DATE
                    7 - EXIT SYSTEM

               BE SURE TO TURN (CAPS LOCK) ON!
```

DATE MESSAGE. This message will be displayed in the upper left corner. It should depict the current date.

CAPS LOCK MESSAGE. This message will be displayed on the bottom of the screen. To ensure consistent data entry, the program is designed to read all data in upper case. Therefore, if you attempt to locate a particular record using lower case type, the program will not be able to find it.

4.1 MAINTENANCE REPORTS

4.1.1 MAINTENANCE REPORTS MENU. The maintenance reports menu is item #1 on the main menu. This is the menu from which all print functions are available. Examples of each report are provided as Attachments A through M.

The following is a the Maintenance Reports Menu:

```
-----------------------------------------------------------------
|                    PLANNED MAINTENANCE SYSTEM                  |
|                                                               |
|                    MAINTENANCE REPORTS MENU                   |
-----------------------------------------------------------------
```

```
     A.  HISTORY REPORT                 H.  COMPLETED PMS LISTING
     B.  DELETED RECORDS REPORT         I.  MRC LISTING
     C.  BACKLOG REPORT                 J.  MRC CARDS
     D.  MONTHLY MAINTENANCE SCHEDULE   K.  BRANCH & TRADE CODE LISTING
     E.  MANAGEMENT SUMMARY REPORT      L.  FEEDBACK-WORK REQUEST FORMS
     F.  CORRECTIVE MAINTENANCE LISTING M.  MIP - EGL LISTING
     G.  P/M - EGL CARDS                N.  RETURN TO MAIN MENU
```

4.1.2 HISTORY REPORT. This is a complete listing of every record currently in the database. Valuable information includes:

a. TO DATE EXPENDED HRS: Reports how many manhours have been performed on a particular piece of equipment. This figure represents fiscal year to date and will reset to 0 at the start of each fiscal year.

b. VAR HRS: The difference between expended manhours and estimated manhours. This can be used to determine:

o Efficiency of the preventive maintenance work force.

o Those MRCs requiring revised Estimated MHRS.

c. DATE SCHEDULED: Indicates when the next preventive maintenance action is to be performed.

4.1.3 DELETED RECORDS REPORT. This report lists all records which have been deleted during the report month. It should almost exclusively consist of recently completed Corrective Maintenance (MC) or Breakdown Maintenance (MB) work orders. The only preventive maintenance records that should show up on this listing are those items that have been removed, replaced or abandoned.

4.1.4 BACKLOG REPORT. This is a critical report, listing all maintenance actions scheduled for the past month, but not completed. The Backlog Report lists unaccomplished preventive maintenance as well as all outstanding corrective and breakdown maintenance. The report format allows you to print out the various maintenance backlogs separately, as a whole, or in any combination.

The Maintenance Management Summary is divided into two parts. The first portion reflects the monthly accomplishment figures. The second part contains the same information expressed year-to-date.

4.1.6.1 MANAGEMENT SUMMARY REPORT (PART 1). The headings across the top of this report are explained as follows:

o ACTIONS: The number of individual preventive maintenance checks or corrective/breakdown maintenance work orders. For accounting purposes, one EGL counts as one check.

- SCHEDULED # ITEMS: Total number of actions scheduled.

- COMPLETED # ITEMS: Total number of actions completed.

- % ACTIONS COMPLETED: (Completed/Scheduled) X 100

o MANHOURS: The labor estimated or actually charged against a particular maintenance action.

- SCHEDULED ESTIMATED MANHOURS: Derived from MRC or corrective/breakdown maintenance work order.

- COMPLETED ESTIMATED MANHOURS: The estimated manhours of all work completed during this report period.

- % COMPLETED EST MANHOURS: (Completed/Scheduled) X 100

- EXPENDED MANHOURS: Those manhours actually entered against preventive maintenance actions or corrective/ breakdown maintenance work orders.

o BACKLOG: The total projected maintenance workload. This figure is obtained by adding to the regularly scheduled workload, any carry over actions from the previous month.

- BACKLOG MANHOURS: Carry over preventive maintenance plus the entire corrective/breakdown maintenance backlog.

- NEXTMTH MANHOURS: A program-generated figure representing the estimated manhours of next months scheduled preventive maintenance.

- TOTAL WORKLOAD: Backlog + Next Month Manhours

The Maintenance Management Summary reports maintenance accomplishment by individual branch, followed by the fuel department totals. The individual headings under "Fuel Department Totals" are explained as follows:

o PREVENTIVE: Preventive maintenance actions are broken into three categories; Priorities 1, 2, and 3. PMS TOTALS represents the total of preventive maintenance actions.

o PMS CARRY OVER: These figures represent preventive maintenance actions not accomplished, but still capable of being rescheduled. A particular maintenance action must meet the following criteria to qualify as PMS Carryover:

1. The action was not completed
2. The action is not scheduled for the following month

Total carry over actions completed during the current month are also reported under this heading.

o LOST PM: This heading reports the number of preventive maintenance actions lost (unable to be rescheduled) during the reporting period.

o BREAKDOWNS: Refers to the number of breakdown maintenance actions identified and accomplished.

o CORRECTIVE: Reports the corrective maintenance accomplishments for the month. This information is further broken down into two categories -- critical and deferrable. These categories correspond to the Annual Inspection Summary criteria, in which a critical deficiency is one that should be corrected within one year, while deferrable deficiencies may be postponed beyond one year.

o NEW ACTIONS: Lists the number of corrective or breakdown maintenance actions identified and completed during the report month.

o GRAND TOTALS: Self-explanatory.

4.1.6.2 MANAGEMENT SUMMARY REPORT (PART 2). Part two is essentially the same as Part one, except that it reports figures on a year-to-date basis rather than monthly, and does not have a column for Next Month Manhours, Backlog Manhours or Total Workload.

4.1.7   CORRECTIVE MAINTENANCE LISTING: The Corrective Maintenance Listing is a line item summary of each corrective (or breakdown) maintenance work order currently backlogged. This report can be extremely beneficial to the fuel director, maintenance foreman or worker out in the field. It provides a means to determine which corrective maintenance work orders should be started in a given month. There are two types of report formats that may be used -- corrective maintenance listing by department or corrective maintenance by priority. This report also can include any unaccomplished breakdown maintenance (although by definition, breakdown maintenance is performed immediately and not backlogged).

4.1.7.1   CORRECTIVE MAINTENANCE LISTING (by requesting department). This report prints in sequence all corrective maintenance work orders currently in the backlog that were initiated by a particular department, division, or branch.

4.1.7.2   CORRECTIVE MAINTENANCE LISTING (by priority). This report lists all corrective maintenance work requests in priority order. It also shows the estimated manhours for each work order and the responsible Trade Code. (i.e., AM = Auto Mechanic). The Status block allows information on material availability to be entered.

4.1.8   PM/EGL TICKETS. This is the selection used to print the next months preventive maintenance tickets. This is the paper the worker takes out to the field and annotates upon completion of each preventive maintenance action. There are five options available under this report.

4.1.8.1   PM AND PRIORITY MAINTENANCE TICKETS. This selection will print out all Scheduled Preventive Maintenance tickets, EGL cards, and any corrective or breakdown maintenance cards whose priority rating is "C" (critical).

4.1.8.2   PM TICKETS CREATED TODAY. This option allows you to print out any tickets which were created the same day.

4.1.8.3   PM AND ALL CORRECTIVE MAINTENANCE TICKETS. Selecting this option enables you to print all scheduled preventive maintenance and all corrective and breakdown cards no matter what their priority is. This includes all corrective maintenance classified as deferrable ("D").

4.1.8.4   BLANK PM TICKETS. This option allows you to generate blank preventive maintenance tickets or work request forms. It can be useful in documenting corrective maintenance work just completed. You will receive a prompt asking how many tickets are desired.

4.1.8.5 INDIVIDUAL PM TICKETS. This option permits you to print out a specific ticket. It may be used to replace a ticket that was lost or damaged.

4.1.9 COMPLETED PM LISTING. This listing is used to identify the preventive maintenance work completed to date. The report can be run at any time during the month. It can also be printed out by individual branch. It is an ideal tool for use by the maintenance and operations foreman to monitor the progress of the work force.

4.1.10 MRC LISTING. This report will list all Maintenance Requirement Cards that exist in your data base.

4.1.11 MRC CARD. This option allows you to print a specific Maintenance Requirement Card. It should be used extensively whenever a worker is not thoroughly familiar with the PM check to be made.

4.1.12 BRANCH AND TRADE CODE LISTING. This selection will produce a print-out of all branch/location and trade codes currently identified in your system.

4.1.13 FEEDBACK-WORK REQUEST FORMS. This is the option used to produce blank work request forms for use in documenting corrective or breakdown maintenance. Additionally, a form used for providing feedback to NAVPETOFF is available. This form should be used to communicate to NAVPETOFF any known problems with or proposed improvements to the Fuel PMS Program.

4.1.14 MIP-EGL LISTING. This report will produce a complete listing of all MIPs and EGLs currently identified within your system.

4.2 DATA BASE FILE MAINTENANCE. The Database File Maintenance menu is item #2 on the main menu. This section will explain how to create (add) new records, and how to modify, display, or delete these records. The following is a sample of the Data Base File Maintenance Menu:

```
-------------------------------------------------------------------
|                    FUEL PMS PROGRAM                             |
|                                                                 |
|             FILE MAINTENANCE MENU                               |
-------------------------------------------------------------------

            1 - ADD MAINTENANCE RECORDS
            2 - LOAD (MRC) DATA
            3 - MODIFY MAINTENANCE RECORDS
            4 - DELETE MAINTENANCE RECORDS
            5 - DISPLAY MAINTENANCE RECORDS
            6 - RE-INDEX DATA BASES
            7 - RETURN TO MAIN MENU
```

4.2.1 ADD MAINTENANCE RECORDS. To add records to the Fuel PMS Program, select #2 (Database File Maintenance) from the main menu. Now select #1 (Add Maintenance Records). The menu for adding maintenance records will look like this:

```
--------------------------------------------------------------------
|                         FUEL PMS PROGRAM                          |
|                                                                   |
|                     ADD MAINTENANCE RECORDS                       |
--------------------------------------------------------------------

                ENTER MAINTENANCE RECORD IDENTIFICATION:

                             BRANCH CODE: [M ]
                             TRADE CODE : [AM]
                             ITEM CODE  : 0003

        DESCRIPTION : [                    ]   LOCATION    : [      ]
        P/M ACTION  : [                 ]      REQUEST DEPT: [ ]
        MRC CODE    : [   - -   ]             LAST P/M     : [  /  / ]
        LAST P/M HRS: [    .  ]               BACKLOG HRS : [    .  ]
        FREQ. MONTHS: [  ]                    MONTHS SINCE: [   ]
        EST. HOURS  : [    .  ]               NEXT P/M     : [  /  / ]
        FREQ. DAYS  : [    ]                  DAYS SINCE  : [      ]
        HOURS TO DTE: [    .  ]               CRITICALITY : [ ]
        P.M. NOTES  : [                 ]     TICKER LIST : [F]
        EGL NUMBER  : [      ]
```

4.2.1.1 BRANCH CODE. When you enter your initial records, you will find that the program does not recognize any branch or trade codes. This is because you must first establish each of these codes. Answer the first question, "Do you want to create new branch codes?" with a "Y" (yes) and fill in the boxes as necessary. The first Item Code assigned will be number 0001. The next time you add a record to that particular branch and trade code, the program will automatically assign the next consecutive number in that particular branch and trade code. The branch code is a two character field, which identifies the branch the maintenance action is assigned to. The first character is the initial of the actual branch (i.e., M = Maintenance, O = Operations). The second character determines what type of maintenance is involved. If it is a preventive maintenance record, leave this space blank. The program will automatically generate a Maintenance Requirement Card for this item. The only other characters that can be used in the second space are "B" and "C":

        a. "B": This designates a breakdown maintenance action.

        b. "C": This designates a corrective maintenance action.

```
Example: M_ = A Maintenance Division PM action.
         MB = A Maintenance Division Breakdown action.
         MC = A Maintenance Division Corrective action.

         O_ = An Operations Division PM action.
         OB = An Operations Division Breakdown item.
         OC = An Operations Division Corrective item.
```

4.2.1.2 TRADE CODE. The trade code can be used in a variety of ways. It can either designate a certain shop (i.e., AM = Auto Mechanic, EM = Electrician, PF = Pipe Fitter), or it can designate the Maintenance Index Page (MIP) of the item scheduled for PM (i.e., TK = Tanks, GA = Gauges, or FH = Fire Hydrants).

4.2.1.3 ITEM CODE. After you have entered the branch code and the trade code, the program will automatically assign a new number to the record.

4.2.1.4 RECORD IDENTIFICATION NUMBER (RIN). This number, combined with the branch and trade codes, becomes the Record Identification Number (RIN). As an illustration, RIN "MSEM0484" could be translated to:

"MC" = A corrective action for the Maintenance Division (branch code)

"EM" = Action is the responsibility of the electrician (trade code)

"0484" = The program assigned number (item code)

The following examples are provided to indicate the difference between a preventive, corrective and breakdown maintenance item:

a. RIN MBEM0001 is a maintenance action belonging to the (M)aintenance branch and is a (B)reakdown action. The Tradecode (EM) indicates that an electrician would perform the maintenance and the Item Code is (0001).

b. RIN MCAM0011 is a maintenance action belonging to the (M)aintenance branch and is a (C)orrective action. The trade code (AM) indicates that an auto mechanic would perform the maintenance. The item code is (0011).

c. RIN O_TK0001 is a preventive maintenance action belonging to the (O)perations branch. The trade code (TK) indicates the maintenance will be performed on a tank, and the item code is (0001).

After the program has assigned the item code, you will see all the fields that can receive data. You will probably not enter data in every field. While most of these are self-explanatory, an explanation of some of the unique features is provided below:

4.2.1.5 REQUEST DEPT: This field is used to identify the department requesting the work. It is routinely utilized for tracking down work requests, usually in corrective and breakdown maintenance. It is a one character field, and should be filled in using the initial of the department submitting the work request.

4.2.1.6 MRC CODE: If this is a preventive maintenance action, you will need to input the appropriate MRC code. MRC coding generally follows the shipboard 3M criteria. It is a five character code, with a hyphen after the second and third characters. Examples include VA-Q-1 (valve/quarterly), PU-A-3 (pump/annual), and PI-M-2 (pipeline/monthly). If the item is corrective or breakdown maintenance, you use this field to assign a priority. Priority entries are "C" or "D". This correlates with the Annual Inspection Summary (AIS) designations of Critical (C) and Deferrable (D), with a Critical deficiency having the highest priority.

4.2.1.7 FREQ MONTHS: This field is for entering preventive maintenance data only. This data field tells the program how often the PM is to take place (i.e., 1 = Monthly, 2 = Every two months, 3 = Every three months, etc.). If you are entering Corrective (_C) or Breakdown (_B) maintenance data, leave this field BLANK.

4.2.1.8 EST HOURS: This field must be completed for every type of maintenance record being entered. It represents the manhours estimated to perform the work.

4.2.1.9 NEXT PM DATE: If this is for preventive maintenance, you MUST fill in a date equal to or greater than today's date. When initially loading preventive maintenance records, assign a date (month) that corresponds with the next time PM should be performed on that equipment. Ensure you do not "front load" your schedule and assign all equipment to receive their initial PM on the same month. When equipment is out of service to the extent that a scheduled PM should not be performed, enter "999" for the next PM date. This will put the next PM date off indefinitely, without taking credit away from your accomplishment rate. Do not forget to assign a new date once the equipment is back in service! If you are entering a corrective or breakdown maintenance item, leave the field blank and the program will automatically fill the field in with today's date.

4.2.1.10 PRIORITY: This field is a single character numeric entry, indicating the relative priority of the specific preventive maintenance action. Three categories (1, 2, 3) are used, with priority one being most critical to the mission. Standardized MRC cards already have been assigned their relative priority. Site-specific MRC cards must be prioritized by the individual activity. In general, priority one assignments should be reserved for PM actions directly related to safety, the environment, or the fuel distribution system.

4.2.1.11 PM NOTES: This field can be used to enter notes to bring to the attention of the worker when the PM is performed. For work requests (corrective or breakdown), the field can be used for reference regarding who to see about special instructions. The most important use for this field is to note when a job has been only partially completed, but the manhours spent on the job to date are required for monthly reports. Refer to the Maintenance Transactions portion (section 4.4) of this manual for further information.

4.2.1.12 TICK LIST: The default for this is False. This field is used to identify whether the item is actual maintenance or if it is used to remind you of an administrative task, such as mid-point reviews. If this is the case, enter a "T" in this field, otherwise leave it as a "F".

4.2.1.13 EGL NUMBER: This field is used when you want the equipment covered under a given MRC to be included on an Equipment Guide List. To use this, it is critical that the wording for the PM Action be identical to that contained on the EGL.

4.2.1.14 MATERIAL COST: This field relates only to corrective or breakdown maintenance. It allows you to track the estimated material cost required to perform the work. This information is important for the maintenance foreman in budgeting for and scheduling upcoming work.

4.2.1.15 MISCELLANEOUS: When you enter new records, you will probably not fill in all the fields, although for preventive maintenance, you will eventually need to. If you make a mistake during the process, just make a note of the Record Identification Number. You can then select item #2 (Modify Maintenance Records) and correct the mistake. If the new record being entered is a Preventive Maintenance item, the program will automatically generate a Maintenance Action Card, which is similar to an MRC card. Upon entering any new record, the program will also ask if you wish to add information at this time. If you answer with a "Y" (yes), you can then enter any additional information, such as unique ID numbers, serial #'s, or maintenance history on the equipment.

4.2.2 LOAD (MRC) DATA. This is selection #2 from the file maintenance menu. This option allows you to load the Standardized MRC disk prepared by the Navy Petroleum Office (NAVPETOFF). You will need to know which standardized MRCs you want loaded (i.e., VA-S-2, Check Valves; Check Operation of Valves) before proceeding in this area. The standardized MRCs provide Item Description, PM Frequency, Priority, PM Required, Safety Precautions, Materials, and Procedures. The remaining data (i.e., Branch Code, Trade Code) must be entered by the fuel terminal.

4.2.3 MODIFY MAINTENANCE RECORDS. This is selection #3 from the file maintenance menu. This option allows you to modify an existing MRC card or a preventive, corrective or breakdown maintenance record. Under this selection, you can change data in any fields except the Branch Code, Trade Code or Item Code. If you wish to change the Branch Code or Trade Code for a particular record, you will first have to delete this record and then re-enter it under the new Branch or Trade Code.

Upon entering the Record Identification Number of the record you wish to change, the program will find the record and ask if this is the one you want to modify. Answering "N" (no) will take you back to the menu. Answering "Y" (yes) will allow you to start changing fields. This is accomplished by first entering the number of the field you wish to change, and then changing it as necessary. After changing a field, the program will display the new data on the screen. To stop making changes, you must enter "00".

For preventive maintenance records, after the record changes are complete, the program will ask if you wish to modify the corresponding MRC. Note that this is the only way to enter information into the MRC card other than through selection #2 - LOAD (MRC) DATA. Answering this with a "Y" (yes), the screen will then change and you will see five different categories to enter information. These are:

1. NOMENCLATURE: This field is used to enter identify the specific piece of equipment (i.e., ID #'s, serial #'s, manufacturer, etc.).

2. SAFETY: This field is used to enter all safety precautions that need to be adhered to when performing a particular PM item.

3. MATERIALS: Use this field to indicate what materials will be needed to complete the PM item.

4. PROCEDURE: These are the detailed instructions to be followed when performing the PM item.

5. HISTORY: This field should be used as a historical record for each piece of equipment covered in the database. Specific entries would include installation date, past breakdown/corrective maintenance history, and inspections.

Recording the cost of all maintenance performed on this equipment would prove helpful in evaluating repair vs. replacement options.

4.2.4 DELETE MAINTENANCE RECORDS. This is selection #4 from the file maintenance menu. This option is used to delete records from the data base. Once the program finds the record, it will ask if it is the correct record. If the record being deleted is a preventive maintenance action, the computer will also delete the corresponding MRC.

4.2.5 DISPLAY MAINTENANCE RECORDS. This is selection #5 from the file maintenance menu. This feature displays all the information entered on a particular maintenance record.

4.2.6 RE-INDEX DATABASES. This is selection #6 from the file maintenance menu. This option should be used periodically to ensure that all the maintenance records are kept in order. If you find that you can't display a record you know is there, or if it shows the wrong information, use this option to troubleshoot with.

4.3 MRC INQUIRY. This is selection #3 from the main menu. The MRC Inquiry option allows you to review or print out any Maintenance Requirement Card in the system. This includes the over 110 NAVSUP Standardized MRCs available on a separate disk. The MRCs are retrieved simply by entering the appropriate MRC number (i.e., "VA-S-2").

4.4 MAINTENANCE TRANSACTIONS. This is selection #4 from the main menu. Once the PMS tickets or EGL cards have been completed, signed off and turned in, they will need to be entered into the program showing the completion date and the labor expended. Upon selecting this option, you will be presented with four sub-options.

4.4.1 PM TICKET TRANSACTIONS: This is the means by which you sign-off all individual PMS tickets, whether they be preventive, corrective or breakdown maintenance actions. You will be prompted for four inputs; Completion Date, Expended Manhours, PM Notes, and Employee Initial/SSN Number. After these four entries are made, the program will then pause and cycle to the next PM ticket.

4.4.2 EGL TRANSACTIONS: This is the option in which you sign-off EGL cards. Before this can be done, **all** items on the EGL must have been completed. If not, then you will have to sign them off as individual actions through Option #1, PM Ticket Transactions. The time expended on each check must also be the same. You shouldn't have one PM check being one hour and the next item on the EGL requiring three hours.

4.4.3 SUPERVISOR CHECKLIST. This option is used to record any follow-up checks on PM actions performed by the supervisor. This option works in the same way as PM ticket and EGL transactions.

4.4.4 PM NOTES: This field can be used to direct the worker, or leave a note for the next time the maintenance is to occur. A special feature of this field is that it can also be used to show that the job is "INCOMPLETE." This feature is used if work is only partially complete at the end of the month, but you still want to account for manhours spent on this action for the current month reports. To do this, you must enter the first six (6) letters of the word "INCOMPLETE." (Your entry should read, "INCOMP"). The program will now account for these hours in the current month and properly adjust your backlog hours as well. The program will then print this ticket again next month, regardless of the frequency.

4.4.5 MISCELLANEOUS: The Maintenance Transactions Menu will not allow you to sign off a PM ticket with a date that does not match the current month and year. It will also prevent the signing-off of a ticket more than once per month. This feature prevents tickets from being duplicated or actions being signed-off twice in one month.

4.5 END OF MONTH PURGE. This is selection #5 from the main menu. Use this option only after you have finished entering all data and printed your reports for the just completed month (i.e., Month End Reports and all Maintenance Transactions). This option effectively "cleans up" the data base. It removes all deleted records, makes back-up copies of these records to disk, and also allows you to make a copy of all maintenance records.

4.6 RESET SYSTEM DATE. This is selection #6 from the main menu. The Reset System Date option allows you to change the system date shown in the upper left corner of your display. Whenever end of the month reports are run, the date displayed must be the last day of the reporting month. Resetting the system date allows you to print end of month reports on a date other than the last day of the month. This becomes handy if the computer operator becomes absent at the end of a month. By resetting the system date to the last day of the month, reports may then be printed. If you do change the date, ensure you change it back to the actual date when you are finished printing your reports.

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<RECORD IDENT KEY>

BRANCH /MIP	EGL	ITEM DESCRIPTION	LOCAL	ACTION <--- REQUIRED --->	MRC/ PRI	COMPL DATE	EXPENDED MANHOURS	VAR HRS	EXPENDED HRS	INLOG HRS	FREQ (MO)	CRIT	EST HRS	DATE SCHEDULE
ZM AM	0001	JEEP 96-34556	BLD 1	SERVICE/TUNE-UP	RF-Q-1	05/25/89	2.5	-0.5	5.0	0.0	3	2	2.0	11/26/89
ZM EM	0001	TRANSFORMER	BLDG 1	INSPECT/CLEAN	TE-A-1	05/11/89	1.0	0.0	0.0	0.0	12	1	1.0	05/13/90
ZM EM	0002	GROUNDING & BONDING	TK FM	CLEAN AND INSPECT	GB-M-1	05/16/89	0.2	0.1	0.0	0.3	1	1	0.3	06/16/89
M EM	0003	TRANSFORMER #2	BLD195	INSPECT/CLEAN	TE-A-1	04/26/88	0.7	-0.2	0.0	0.5	12	1	0.5	04/26/89
M ME	0001	LATHE	BLD 1	CLEAN/SERVICE	TO-S-4	10/26/88	1.0	0.0	0.0	1.0	6	2	1.0	04/26/89
M ME	0002	BOILER	BLD 1	CLEAN/SERVICE	TO-S-5	03/26/89	1.0	0.0	0.0	1.0	6	3	1.0	09/26/89
O BO	0001	FUEL BARGE	PIER	CHANGE ANTIFREEZE	BT-A-2	06/23/88	3.0	0.0	0.0	0.0	12	1	3.0	06/23/89
ZO OP	0001	CALIBRATE GAGES	TK FM	COMPARE TO STD GA.	CA-A-3	05/31/89	0.5	0.0	2.0	0.5	0	1	0.5	06/19/89
O VA	0001	VALVE 14	TK 18	CLEAN/LUBE	VA-Q-1	02/26/89	0.6	-0.1	0.6	0.5	3	2	0.5	05/26/89
OB	0001	METER	PIER	CALIBRATE		01/21/89	1.0	0.5	1.0	1.5	0	2	1.5	05/21/89
OB MM	0001	VALVES	VP 21	GREASE	PRI	01/07/89	0.5	0.0	0.5	0.0	6	2	0.5	07/07/89

MASTER RECORDS COUNT: IN   15;   ADDED   0;   DELETED   4;   OUT   11

* = ADDITIONS;   % = CHANGES

ATTACHMENT   A

05/31/89

FUEL DEPARTMENT MAINTENANCE - DELETED RECORD LISTING

<RECORD IDENT KEY>

TRADE	ITEM			ACTION	MRC/	COMPL	
BRANCH /MLF.	CODE	ITEM DESCRIPTION	LOCAL	<--- REQUIRED --->	PRI	DATE	EXP. HRS
M	AM	0002	DODGE VAN 97-13344	BLD 1	SERVICE/TUNE-UP	RF-Q-104	12/89	0.00
M	EM	0004	TRANSFORMER #3	BLD178	CLEAN/INSPECT	TE-A-103	26/88	0.00
O	PF	0001	TANK #3	TK FM	CHECK VENTS	BU-S-212	09/88	0.00
OS	ME	0001	VALVE	PM BLD	GREASE	PRI D	04/28/89	4.00

DELETED RECORDS COUNT: 4

ATTACHMENT   B

PRELIMINARY REPORT

<RECORD IDENT KEY> TRADE ITEM # BRANCH /MIP EGL# ITEM DESCRIPTION	LOCAL	<---- ACTION REQUIRED ---->	MRC/ PRI	LAST COMPL DATE	CRIT CODE	FREQ (MO)	ESTIMATED MANHOURS	DUE DATE
M EM 0003 TRANSFORMER #2 1	BLD195	INSPECT/CLEAN	TE-A-1	/ /	1	12	0.5	04/26/0?
M ME 0001 LATHE 4	BLD 1	CLEAN/SERVICE	TO-B-4	/ /	2	6	1.0	04/26/09

ATTACHMENT   C

ATTACHMENT D

FUEL DEPARTMENT MAINTENANCE - MANAGEMENT SUMMARY

<----- May 1989 ----->

BRANCH/LOCAL:	*SCHEDULED*COMPLETED* # ITEMS	# ITEMS	% ACTIONS COMPLETED	*SCHEDULED*COMPLETED* ESTIMATED MANHOURS	ESTIMATED MANHOURS	% COMPLETED EST. MANHOURS	EXPENDED MANHOURS	BACKLOG + MANHOURS	NEXTMTH = TOTAL MANHOURS WORKLOAD
MAINTENANCE									
PREVENTIVE:									
PRIORITY 1:	2	2	100.0	1.3	1.3	100.0	0.0	0.0	
PRIORITY 2:	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
PRIORITY 3:	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
PMS TOTALS:	2	2	100.0	1.3	1.3	100.0	0.0	1.5	0.3 1.0
PMS CARRY OVER:	2	0	0.0	1.5	0.0	0.0	0.0		
LOST P.M.:	0			0.0					
OPERATIONS									
PREVENTIVE:									
PRIORITY 1:	1	1	100.0	0.0	0.0	0.0	2.0	0.0	
PRIORITY 2:	1	0	0.0	0.5	0.0	0.0	0.0	0.5	
PRIORITY 3:	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
PMS TOTALS:	2	1	50.0	0.5	0.0	0.0	2.0	1.0	0.0 1.0
PMS CARRY OVER:	1	0	0.0	0.5	0.0	0.0	0.0		
LOST P.M.:	0			0.0					
BREAKDOWNS:	2	0	0.0	0.0	0.0	0.0	0.0	0.0	
CORRECTIVE:	1	0	0.0	1.0	0.0	0.0	0.0	1.0	
CRITICAL:	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
DEFERRED:	1	0	0.0	1.0	0.0	0.0	0.0	1.0	
FUEL DEPT. TOTALS									
PREVENTIVE:									
PRIORITY 1:	3	3	100.0	1.3	1.3	100.0	2.0	0.0	
PRIORITY 2:	1	0	0.0	0.5	0.0	0.0	0.0	0.5	
PRIORITY 3:	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
PMS TOTALS:	4	3	75.0	1.8	1.3	72.2	2.0	2.5	0.3 2.0
PMS CARRY OVER THIS MONTH:	3	0	0.0	2.0	0.0	0.0	0.0		
P.M. LOST THIS MONTH:	0			0.0					
BREAKDOWNS:	2	0	0.0	0.0	0.0	0.0	0.0	0.0	
CORRECTIVE:	1	0	0.0	1.0	0.0	0.0	0.0	1.0	
CRITICAL:	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
DEFERRED:	1	0	0.0	1.0	0.0	0.0	0.0	1.0	
GRAND TOTALS:	10	3	30.0	4.8	1.3	27.1	2.0	3.5	0.3 2.0

FUEL DIRECTORS COMMENTS:

05/31/89   PAGE 2

ATTACHMENT   D   (cont.)

MANAGEMENT SUMMARY -- *** YEAR TO DATE ***

	***** ACTIONS ***** May 1989 *SCHEDULED*COMPLETED* # ITEMS			**** MANHOURS **** May 1989 *SCHEDULED*COMPLETED*			
	# ITEMS	# ITEMS	% ACTIONS	ESTIMATED	ESTIMATED	% COMPLETED EST. MANHOURS	EXPENDED MANHOURS
BRANCH/LOCAL:							
MAINTENANCE							
PREVENTIVE:							
PRIORITY 1:	8	2	25.0	10.6	1.3	12.3	0.0
PRIORITY 2:	2	0	0.0	0.0	0.0	0.0	0.0
PRIORITY 3:	0	0	0.0	0.0	0.0	0.0	0.0
PMS TOTALS:	10	2	20.0	7.3	1.3	17.8	0.0
LOST P.M.:	0	0	0.0	0.0	0.0	0.0	0.0
BREAKDOWNS:	0	0	0.0	0.0	0.0	0.0	0.0
CORRECTIVE:	0	0	0.0	0.0	0.0	0.0	0.0
OPERATIONS							
PREVENTIVE:							
PRIORITY 1:	1	1	100.0	0.0	0.0	0.0	2.0
PRIORITY 2:	1	0	0.0	0.0	0.0	0.0	0.0
PRIORITY 3:	0	0	0.0	0.0	0.0	0.0	0.0
PMS TOTALS:	2	1	50.0	0.5	0.0	0.0	2.0
LOST P.M.:	0	0					
BREAKDOWNS:	4	0	0.0	0.0	0.0	0.0	0.0
CORRECTIVE:	2	2	0.0	2.0	0.0	0.0	0.0
FUEL DEPT. TOTALS							
PRIORITY 1:	9	3	33.3	10.6	1.3	12.3	0.0
PRIORITY 2:	3	0	0.0	0.0	0.0	0.0	0.0
PRIORITY 3:	0	0	0.0	0.0	0.0	0.0	0.0
PMS TOTALS:	12	3	25.0	7.8	1.3	16.7	2.0
LOST P.M. - Y.T.D.:	0	0	0.0	0.0	0.0	0.0	0.0
BREAKDOWNS:	4	0	0.0	0.0	0.0	0.0	0.0
CORRECTIVE:	2	2	0.0	2.0	0.0	0.0	0.0
GRAND TOTALS	18	3	16.7	9.8	1.3	13.3	2.0
TICKLER LIST							
GRAND TOTALS:	0	0	0.0	0.0	0.0	0.0	0.0

BRANCH /MIP	TRADE	ITEM # EGL#	ITEM & DESCRIPTIONS	LOCATION <----- ACTION REQUIRED ----->	MRC/ PRI	<-- LAST PM CYCLE --> COMPL DATE	EXPENDED MANHOURS	EST. MHRS	FREQ (MO)	CRIT CODE	DUE DATE
0	BO	0001 0	FUEL BARGE	PIER CHANGE ANTIFREEZE	BT-A-2	/ /	0.0	3.0	12	1	06/28/89
				TOTAL EXP/EST. M.H. FOR TRADE/MIP = BARGE OPERATOR ARE ==>			0.0	3.0			
0	OP	0001 6	CALIBRATE GAGES	TK FM COMPARE TO STD GA.	CA-A-3	05/31/89	2.0	0.5	0	1	06/12/89
				TOTAL EXP/EST. M.H. FOR TRADE/MIP = GAGER ARE ==>			2.0	0.5			
				TOTAL EXP/EST. M.H. FOR BRANCH = OPERATIONS ARE ==>			2.0	3.5			

<RECORD IDENT KEY>

ATTACHMENT E

CORRECTIVE MAINTENANCE LISTING BY REQUESTING DEPARTMENT

A = AIS

REQ.
DEPT.   TRADE
(AIS) BRN CODE   ITEM   ITEM DESCRIPTION   ACTION REQUIRED   PRI   EST. HRS.   ACTION STATUS

** REQUESTING DEPARTMENT = 0

* BRANCH & TRADECODE = OB
0   OB   0001   METER   CALIBRATE   1.5
* Subsubtotal *   1.5

** Subtotal **   1.5

*** Total ***   1.5

ATTACHMENT   F

PLANNED MAINTENANCE SYSTEM
PMS ACTION TICKET

REC ID	.C P.M. DESCRIPTION	P.M. ACTION	LOCAL	EST. MH	MRC CODE
M AM0001	2 JEEP 96-34556	SERVICE/TUNE-UP	BLD 1	2.0	RF-Q-1
M AM0002	2 DODGE VAN 97-13344	SERVICE/TUNE-UP	BLD 1	2.0	RF-Q-1

EGL DUE DATE ==p==> 05/26/89

TOTAL ESTIMATED MAN HOURS THIS EGL ==>   4.0

DATE EGL WAS COMPLETED ==> _____
TIME USED TO COMPLETE EACH ITEM ==> __.__
EMPLOYEE INITIALS - NUMBER ==> _____
PROBLEMS (YES - NO)
(IF YES, EXPLAIN)

WORK REQUEST NUMBER _____

DATE OF COMPUTER ENTRY==> _____

ATTACHMENT   G

PLANNED MAINTENANCE SYSTEM

EQUIPMENT GUIDE LIST

RECORD I.D.	C	P.M. DESCRIPTION	P.M. ACTION	LOCAL	EST M/H	MIP #	DUE DATE
** EGL NUMBER 1							
M EM0001	1	TRANSFORMER	INSPECT/CLEAN	BLDG 1	1.0	TE-A-1	05/13/90
M EM0003	1	TRANSFORMER #2	INSPECT/CLEAN	BLD195	0.5	TE-A-1	04/26/89
** Subtotal **					1.5		
*** Total ***					1.5		

ATTACHMENT   G   (cont.)

JOBS COMPLETED THIS MONTH

	TRADE				CRIT		ACTUAL
BRN	CODE	ITEM	DESCRIPTION	ACTION REQUIRED	CODE	DATE	EXP. HRS
** BRANCH M							
* TRADECODE AM							
M	AM	0001		SERVICE/TUNE-UP	2	05/25/89	2.5
* Subsubtotal *							2.5
* TRADECODE EM							
M	EM	0001		INSPECT/CLEAN	1	05/11/89	1.0
M	EM	0002		CLEAN AND INSPECT	1	05/16/89	0.2
* Subsubtotal *							1.2
** Subtotal **							3.7
*** Total ***							3.7

ATTACHMENT   H

MAINTENANCE REQUIRMENT CARD LISTING

MRC CODE	DESCRIPTION	P.M. ACTION	FREQ	CRIT	est mh
BT-A-2	FUEL BARGE	CHANGE ANTIFREEZE	12	1	3.0
BU-S-2	TANK #3	CHECK VENTS	6	2	0.5
CA-A-3	CALIBRATE GAGES	COMPARE TO STD GA.	12	1	0.5
CA-S-1	METER	CALIBRATE	6	2	1.5
GB-M-1	GROUNDING & BONDING	CLEAN AND INSPECT	1	1	0.3
RF-Q-1	JEEP 96-34556	SERVICE/TUNE-UP	3	2	2.0
TE-A-1	TRANSFORMER	INSPECT/CLEAN	12	1	1.0
TO-S-4	LATHE	CLEAN/SERVICE	6	2	1.0
TO-S-5	BOILER	CLEAN/SERVICE	6	3	1.0
VA-Q-1	VALVE 14	CLEAN/LUBE	3	2	0.5
*** Total ***					11.3

ATTACHMENT   I

MAINTENANCE REQUIREMENT CARD

MRC CODE	FREQUENCY	ESTIMATED M.H.	CRIT
GB-M-1	1	0.3	1

	P.M. REQUIRED	LOCATION
DESCRIPTION	CLEAN AND INSPECT	TK FM
GROUNDING & BONDING		

** SAFETY PRECAUTIONS **

1. No Smoking
2. Standard Safety Precautions

** MATERIALS - TOOLS **

1. Bonding Cable (if replacement is necessary)
2. Number 180 Emery Cloth
3. Wire Brush
4. Screwdriver
5. Bridge Tester/Multimeter
6. Light Lubricating Oil

** PROCEDURE **

1. Visually inspect cable for corrosion and damaged insulation. Replace cable if damaged or corroded.

2. Inspect grounding clamps for corrosion and damage. Clean, repair or prepare work request as necessary based on inspection results.

3. Clean clamps and clips with emery cloth and wire brush.

4. Inspect for loose connections and open leads. Secure if necessary.

5. With bridge tester or multimeter, measure ground resistance (NOTE: Recommended resistance is 5 ohms or less, but not in excess of 25 ohms). If ground resistance is not in accordance with specifications, adjust, repair or prepare work request as necessary.

6. Lubricate clamp threading with light lubricating oil.

BRANCH & TRADECODE LISTING

BRANCH	TRADECODE	BRANCH DESCRIPTION	TRADE CODE DESCRIPTION
** BRANCH = O			
O	BO	OPERATIONS	BARGE OPERATOR
O	OP	OPERATIONS	GAGER
O	PF	TANKFARM	PIPEFITTER
O	VA	OPERATIONS	VALVES

PMS FEEDBACK REPORT (PMSFR)

DATE:

FROM:

TO: NAVPETOFF (Code 33)

PMSFR #_____

Request the following action(s) be taken concerning PMS:

____ Change periodicity of action

____ Delete action from DATABASE.   (Maintenance no longer required.)

____ Add/delete info from MRC.

____ Other

Branch: _____

Trade Code: _____

Item Code: _____

MIP: _____

Justification:_____

_____

_____

From: NAVPETOFF (Code 33)

To:_____

Above Action   ____ Approved

                ____ No action taken because:_____

                ____ Disapproved because:_____

BREAKDOWN/CORRECTIVE ACTION WORK REQUEST

REQUEST TYPE: BREAKDOWN:_____   CORRECTIVE:____

PRIORITY (A-C)   TYPE: SAFETY____   OPERATIONAL:____   ENVIRONMENTAL____

DATE:_____   NAME:_____   DIVISION/SECTION_____

LOCATION:_____   EQUIPMENT I.D. NUMBER_____

WORK DESCRIPTION (cont. on reverse)   SKETCH/PLAN ATTACHED __YES__NO

JUSTIFICATION:_____

APPROVED BY: (Initial & Date)

    FOREMAN (Ops)_____   GEN. FOREMAN_____
    FOREMAN (Maint)_____   FACILITY SPEC._____
    DEPUTY_____   DIRECTOR_____

RECOMMENDED ACTION:

    ____ FUEL OPERATIONS   ____ STAFF CIVIL ENGINEER

    ____ FUEL MAINTENANCE   ____ OTHER_____

FOR MAINTENANCE USE ONLY
Personnel/Skills Required:_____   EST. MANHOURS_____

MATERIAL REQUIRED:
MATERIAL ON ORDER   REQUESITION NO.   REQUISITION NO.   STATUS   EST. MATL COST

EQUIPMENT REQUIRED:
EQUIPMENT ON HAND   OTHER SOURCE   EST. EQUIP COST

ACTUAL START DATE: STATUS/REMARKS

WORK ACCEPTED BY: (Name & Date)_____

COMPLETED BY: (Name & Date)_____

INSPECT BY: (Name & Date)_____

ACTUAL:
MANHOURS   LABOR COST   MATL COST   EQUIPMENT COST   TOTAL COST

COMPONENT: VALVES   REFERENCE:

MRC CODE	DESCRIPTION	P.M. ACTION	CRIT	EST. M/H
VA-Q-1	VALVE 14	CLEAN/LUBE	2	0.5
VA-Q-2	VALVE, DIAPHRAGM	CLEAN/LUBE/INSPECT		0.5
VA-Q-4	VALVE, PLUG	LUBRICATE	2	0.5
VA-S-1	VALVE, CHECK	CHECK OPERATION	2	0.0
VA-S-2	VALVE, TWIN SEAL	INSPECT AND DRAIN	1	0.2

ATTACHMENT M